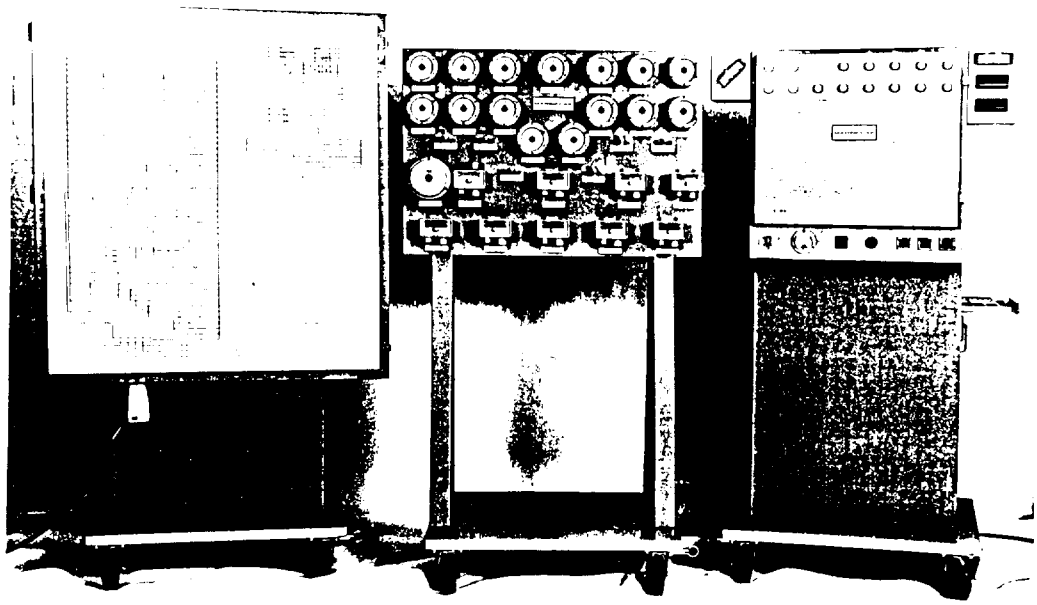
SUMMARY OF
ELECTRICAL CIRCUIT DISPLAY TRAINER

MAY 1993 Device 19E49

NAVAL TRAINING SYSTEMS CENTER ORLANDO, FLORIDA



TRAINING CATEGORY

Electronic Circuitry.

ORIGINATING AGENCY

NAVSEA

SECURITY CLASSIFICATION

Device 19E49 is UNCLASSIFIED.

PURPOSE OF DEVICE

Develop proficiency in the operation and maintenance of the shipboard 125 ton air conditioning system.

INTENDED USE

The ACPT is used to train students in the operation and maintenance of the shipboard 125 ton air conditioning system.

The ACPT is used to train students in the operation of the air conditioning system under normal operating conditions.

The ACPT is also used to train students in the identification of abnormal conditions and the troubleshooting procedures required to maintain the shipboard air conditioning system.

FUNCTIONAL DESCRIPTION

Device 19E49 consists of two moveable units which carry a facsimile of the Air Conditioning Plant Control Panel and Instrument Board, and a third unit which is a representation of the electrical schematic as depicted in the NAVSEA

Maintenance Manual.

The Trainer Control Panel (TCP) simulates the actual Control Panel as much as possible by using an actual Air Conditioning Plant Control Panel enclosure and mounting plate and selected other parts such as lights and switches. Mounted with the simulated Control Panel is a TCP computer. The TCP computer receives inputs from switches and other simulated signals and furnishes outputs to various lights and meters. The TCP contains an Instructor/Operator station which provides the capability to develop scenarios, select and initiate different operations.

The Trainer Instrument Board (TIB) simulates the look and feel of an actual Air Conditioning Plant (ACP) Instrument Board. Mounted on this board are 0 to 10 Volt input voltmeters with dials simulating the temperature and pressure ranges of actual ACP gauges. The interface between the TIB and the TCP is via a data cable. The meters are driven by outputs from the TCP computer. All simulation on the TIB is controlled via the TCP Instructor/Operator station.

The Trainer Schematic Panel (TSP) is constructed of an acrylic plastic panel imprinted with transparent colored inks. This gives the desired color coding for the schematic. The panel is 4 feet high x 3.5 feet wide. This plastic panel is mounted in front of a light panel which contains 183 lights. Mounted with the simulated Schematic Panel is a TSP computer. The TCP contains an Instructor/Operator station which provides the capability select and initiate different lighting sequences. The lights are individually controllable from the TSP Instructor/Operator station. These lights illuminate individual portions of the schematic to illustrate operation of the air conditioning circuitry.

PHYSICAL INFORMATION

The device consists of three moveable carts which can be rolled from one classroom to another.

Trainer Control Panel (TCP) - 78 inches high x 42.5 inches wide x 34 inches deep; 630 pounds.

Trainer Instrument Board (TIB) - 78 inches high x 44 inches wide x 34 inches deep; 370 pounds.

Trainer Schematic Panel (TSP) - 83 inches high x 44 inches wide x 34 inches deep; 610 pounds.

A data cable is required for the interface between the TIB and the TCP.

EQUIPMENT REQUIRED (Not Supplied):

None

POWER REQUIREMENTS

120VAC, 60Hz single phase
1.2 KVA maximum

PUBLICATIONS FURNISHED

Operation and Maintenance Instructions with Parts Catalog, ACPT Device 19E49, NTSC P-6987-1 and -2 (U)

Maintenance Requirement Cards, ACPT Device 19E49, NTSC P-6988 (U)

Training System Utilization Handbook for Simulation Equipment, ACPT Device 19E49, NTSC P-6990 (U)

Commercial Equipment Document Set, Device 19E49, Volumes 1 and 2, NTSC P-6989 (U)

PERSONNEL

Instructor/Operator - One instructor qualified in the operations and maintenance of the 125 Ton Air Conditioning Plant.

Trainees - The Device 19E49 can be used to instruct as many students as can be comfortably accommodated in the classroom. The design specification of the device requires visual identification of electrical symbols from a distance of 20 feet.

Maintenance Personnel- Two technicians with basic electronics training.

CONTRACT IDENTIFICATION

Manufactured by AHNTECH, Incorporated, 5575 Ruffin Road, San Diego, CA 92123, NAVTRASYSCEN Contract No. N61339-92-C-0056.